



Short term effects of temperature on risk of myocardial infarction in England and Wales: Time series regression analysis of the Myocardial Ischaemia National Audit Project (MINAP) registry

Author(s): Bhaskaran K, Hajat S, Haines A, Herrett E, Wilkinson P, Smeeth L
Year: 2010
Journal: BMJ (Clinical Research Ed.). 341: c3823

Abstract:

OBJECTIVE: To examine the short term relation between ambient temperature and risk of myocardial infarction. **DESIGN:** Daily time series regression analysis. **SETTING:** 15 conurbations in England and Wales. **PARTICIPANTS:** 84,010 hospital admissions for myocardial infarction recorded in the Myocardial Ischaemia National Audit Project during 2003-6 (median 57 events a day). **MAIN OUTCOME MEASURES:** Change in risk of myocardial infarction associated with a 1 degrees C difference in temperature, including effects delayed by up to 28 days. **RESULTS:** Smoothed graphs revealed a broadly linear relation between temperature and myocardial infarction, which was well characterised by log-linear models without a temperature threshold: each 1 degrees C reduction in daily mean temperature was associated with a 2.0% (95% confidence interval 1.1% to 2.9%) cumulative increase in risk of myocardial infarction over the current and following 28 days, the strongest effects being estimated at intermediate lags of 2-7 and 8-14 days: increase per 1 degrees C reduction 0.6% (95% confidence interval 0.2% to 1.1%) and 0.7% (0.3% to 1.1%), respectively. Heat had no detrimental effect. Adults aged 75-84 and those with previous coronary heart disease seemed more vulnerable to the effects of cold than other age groups (P for interaction 0.001 or less in each case), whereas those taking aspirin were less vulnerable (P for interaction 0.007). **CONCLUSIONS:** Increases in risk of myocardial infarction at colder ambient temperatures may be one driver of cold related increases in overall mortality, but an increased risk of myocardial infarction at higher temperatures was not detected. The risk of myocardial infarction in vulnerable people might be reduced by the provision of targeted advice or other interventions, triggered by forecasts of lower temperature.

Source: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2919679>

Resource Description

Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

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Geographic Feature: ☒

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☒

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : England;Wales

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Cardiovascular Effect

Cardiovascular Effect: Heart Attack

Intervention: ☒

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation: ☒

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern: ☒

populations at particular risk or vulnerability to climate change impacts

Elderly

Other Vulnerable Population: People with previous coronary heart disease

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☒

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resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content